

<b>Title</b>	<b>Create a computer program to provide a solution to a problem</b>		
<b>Level</b>	<b>3</b>	<b>Credits</b>	<b>6</b>

<b>Purpose</b>	People credited with this unit standard are able to: formulate a design specification for a computer program to provide a solution to a problem; write code for the computer program that is consistent with the conventions of the chosen language; test and modify the computer program to provide a solution to a problem; and create simple end-user documentation for the computer program.
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<b>Classification</b>	Computing > Software Development - Programming
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<b>Available grade</b>	Achieved
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### Guidance Information

- 1 Recommended skills and knowledge:  
Unit 18740, *Create a simple computer program to meet a set brief*, or demonstrate equivalent knowledge, skills and experience.
- 2 The program must include but is not limited to – keyboard input, screen output, at least two variables that store different types of data, sequence, looping/iteration, decisions/selection, user defined procedures/methods/functions, arithmetic and data validation.  
  
Data validation requires the program to perform some testing on input data to ensure its validity. This may include but is not limited to – range-checking, numeric format, upper or lower case, input length, or other appropriate method.
- 3 An outline for the program will be supplied. A *design specification* outlines how the requirements of the program will be realised. It must include the specifications and/or features required by the program to provide the solution. The specification may be modified during the task and changes justified. Evidence of planning may be oral, written, and/or graphic.
- 4 Definitions  
*Internal documentation* means documentation included as comments within the source code, rather than documentation created separately.  
*Problem decomposition* means breaking the problem down into smaller manageable components/sub-problems.  
*A simple end-user document* is intended for a non-skilled user of a program, rather than providing documentation for a programmer.

- 5 Legislation relevant to this unit standard includes but is not limited to the:  
 Copyright Act 1994  
 Copyright (New Technologies) Amendment Act 2008  
 Electronic Transactions Act 2002  
 Harmful Digital Communications Act 2015  
 Health and Safety at Work Act 2015  
 Privacy Act 2020  
 Unsolicited Electronic Messages Act 2007  
 and any subsequent amendments.  
 Current legislation and regulations can be accessed at <http://legislation.govt.nz>.
- 6 Reference  
*ACC5637 Guidelines for Using Computers - Preventing and managing discomfort, pain and injury*. Accident Compensation Corporation - Department of Labour, 2010; available from WorkSafe New Zealand, at <http://www.business.govt.nz/worksafe/information-guidance/all-guidance-items/guidelines-for-using-computers>.

## Outcomes and performance criteria

### Outcome 1

Formulate a design specification for a computer program to provide a solution to a problem.

#### Performance criteria

- 1.1 A design specification is formulated that identifies the problem to be solved, describes how the program is to be used, and outlines a logical design or model to be used as a basis to code the program.

Range specifications include but are not limited to – constraints; purpose; target users; decomposition of the problem; structure and specifications of the program; computer language to be used; input and output requirements; outline of the proposed testing procedures.

- 1.2 A logical design or model is developed to be used as a basis to code the program to provide a solution to a problem.

Range logical design may include – flow charts; pseudocode; natural language; meeting the design specification.

### Outcome 2

Write code for the computer program that is consistent with the conventions of the chosen language.

Range meaningful descriptive names for variables, procedures, functions, labels and data files; use of indentation and spacing; use of comments to explain program structure and function.

**Performance criteria**

- 2.1 Code is created in accordance with the design specification and the decomposition of the problem.
- 2.2 Code is internally documented to meet the requirements of the design specification.

**Outcome 3**

Test and modify the computer program to provide a solution to a problem.

**Performance criteria**

- 3.1 A procedure for testing the program which ensures the program meets the design specifications is described and documented.
- 3.2 Program is tested in accordance with documented procedure, and modified as required to meet the design specifications.
- Range includes testing – valid; invalid; boundary cases; includes – documenting all changes including the reasons for them; may include – use of online code checkers.
- 3.3 Design specifications are met and a solution to the problem provided by the program, as verified by its operation.

**Outcome 4**

Create simple end-user documentation for the computer program.

**Performance criteria**

- 4.1 A simple end-user document is created to facilitate use of the program.
- Range includes – purpose; step by step instructions; non-technical language; may include – use of screenshots.

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<b>Planned review date</b>	31 December 2026
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**Status information and last date for assessment for superseded versions**

Process	Version	Date	Last Date for Assessment
Registration	1	23 October 2002	31 December 2013
Revision	2	16 July 2004	31 December 2013
Review	3	22 May 2009	31 December 2013
Revision	4	18 February 2011	31 December 2015
Rollover and Revision	5	19 September 2013	31 December 2019
Review	6	19 January 2017	31 December 2024
Review	7	28 April 2022	N/A

**Consent and Moderation Requirements (CMR) reference**

0099

This CMR can be accessed at <http://www.nzqa.govt.nz/framework/search/index.do>.

**Comments on this unit standard**

Please contact Toi Mai Workforce Development Council [qualifications@toimai.nz](mailto:qualifications@toimai.nz) if you wish to suggest changes to the content of this unit standard.